

Shasta

\*\* California Department of Fish and Game \*\*\*\*\* Natural Diversity Data Base

\* PACIFASTACUS FORTIS  
Shasta Crayfish

\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:  
\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 2 --Dates Last Seen-  
Quality: Excellent Element: 1992/04/2  
Type: Natural/Native occurrence Site: 1992/04/2  
Presence: Presumed Extant  
Trend: Stable  
Main Info Source: ENG & DANIELS, 1982 (LIT)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: LAVA CREEK AND INDIAN SPRING, TRIBUTARY TO EASTMAN LAKE AND  
LITTLE TULE RIVER (FALL RIVER DRAINAGE).

Lat/Long: 41d 06m 57s / 121d 29m 39s Township: 38N  
UTM: Zone-10 N4552555 E626406 Range: 04E  
Mapping Precision: SPECIFIC (0 Mile) Section: 22 XX Qt.  
Symbol Type: POLYGON Meridian: M  
Group Number: 11456 More Information? N Acres: 63.3  
Map Index Number: 11456 More Map Detail? N Elevation: 3320 ft

Threats: INVASION BY PACIFASTACUS LENIUSCULUS. SOME LIGHT GRAZING ON  
ADJACENT LANDS.

Comments: Distribution Notes - SHASTA CRAYFISH WERE FOUND WHEREVER  
SUITABLE ROCKY HABITAT EXISTED. Ecological Notes - CLEAN LAVA  
COBBLE ON GRAVEL WITH SOME AREAS OF SAND, SILT, COARSE ORGANIC  
MATTER OR LAVA BEDROCK. 10-20 M WIDE, 0.5 - 1 M DEEP. HEADWATER  
POOLS UP TO 5 M DEEP. ROUGH AND MARBLE SCULPIN ALSO FOUND HERE.  
General Notes - IN 1985 PACIFASTACUS LENIUSCULUS FOUND BELOW  
RAPIDS WHERE LAVA CREEK ENTERS EASTMAN LAKE. IN 1990 THEY WERE  
FOUND ABOVE RAPIDS & IN 1992 1 FEMALE WAS FOUND 1/2 WAY UP LAVA  
CREEK. 109 P. FORTIS FOUND IN 1990, 147 FOUND IN 1992.  
Owner/Manager - PVT

Shasta Cray Report  
Date of Report: 04/10/97

Government/Conservation Client  
Date Information Purchased: 03/18/97 Page 1

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D-050245

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\* PACIFASTACUS FORTIS

\* Shasta Crayfish

\* -----Status----- NDDDB Element Ranks -----Other Lists-----

\* Federal: Endangered Global: G1 CDFG:

\* State: Endangered State: S1 Audubon:

\* CNPS List:

\* ---Habitat Associations--- CNPS RED Code:

\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE

\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.

\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP

\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;

\* LITTLE VEG.

\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 3 --Dates Last Seen-

Quality: Excellent Element: 1990/07/1

Type: Natural/Native occurrence Site: 1990/07/1

Presence: Presumed Extant

Trend: Increasing

Main Info Source: ENG & DANIELS, 1982 (LIT)

Quad Summary: Dana (4112115)

County(ies): Shasta

Location: SPRING CREEK, TRIBUTARY TO FALL RIVER; APPROX 7 MILES NE OF LAKE BRITTON.

Lat/Long: 41d 06m 30s / 121d 30m 34s	Township: 38N
UTM: Zone-10 N4551667 E625127	Range: 04E
Mapping Precision: SPECIFIC (0 Mile)	Section: 28 N Qt
Symbol Type: POLYGON	Meridian: M
Group Number: 11423	Acres: 42.1
Map Index Number: 11423	Elevation: 3320 ft

Threats: PAST GRAZING MAY HAVE LED TO STREAMBANK EROSION BUT CREEK NOW FENCED. P. LENIUSCULUS FOUND BELOW MOUTH OF SPRING CREEK.

Comments: Distribution Notes - SHASTA CRAYFISH WERE FOUND WHEREVER THERE WAS SUITABLE ROCKY SUBSTRATE; MOST WERE FOUND IN 4 ROCKY COVES ON THE WEST SIDE OF THE STREAM. Ecological Notes - AREAS OF VOLCANIC BOULDERS & RUBBLE ON SUBSTRATE OF CLEAN SAND & GRAVEL TO 5-7 CM OF SILT. AQUATIC VEGETATION & ALGAE DENSE IN SOME AREAS, ABSENT FROM OTHERS. EAST BANK & DOWNSTREAM PORTION EXTREMELY SILTY WITH LOTS OF FILAMENTOUS ALGAE. General Notes - SHASTA CRAYFISH WERE FOUND WHEREVER THERE WAS SUITABLE HABITAT, FROM THE HEADWATER SPRING TO THE FIRST ROAD CROSSING IN 1985 & 1990 (24 ADULTS & 37 JUVENILES). ALSO FOUND HERE IN 1978. Owner/Manager - PVT

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 \* Shasta Crayfish

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 \* Federal: Endangered Global: G1 CDFG:  
 \* State: Endangered State: S1 Audubon:

\* CNPS List:

\* ---Habitat Associations--- CNPS RED Code:

\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
 \* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.

\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
 \* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
 \* LITTLE VEG.

\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 4

Quality: None

Type: Natural/Native occurrence

Presence: Extirpated

Trend: Unknown

Main Info Source: ENG & DANIELS, 1982 (LIT)

--Dates Last Seen--

Element: 1978/05/2

Site: 1990/XX/2

Quad Summary: Cassel (4012185)

County(ies): Shasta

Location: BAUM LAKE, HAT CREEK SUBDRAINAGE; ABOUT 6 MILES NE OF BURNEY .

Lat/Long: 40d 56m 18s / 121d 32m 39s

Township: 36N

UTM: Zone-10 N4532733 E622544

Range: 04E

Mapping Precision: SPECIFIC (0 Mile)

Section: 32 XX Qt

Symbol Type: POLYGON

Meridian: M

Group Number: 11353

More Information? Y

Acres: 87.6

Map Index Number: 11353

More Map Detail? N

Elevation: 2978 ft

Threats: EXOTIC PACIFASTACUS LENIUSCULUS ELIMINATED P. FORTIS FROM THIS SITE.

Comments: Distribution Notes - A FEW PACIFASTACUS FORTIS WERE FOUND UNDER ROCKS ALONG THE NATURAL DIKE SEPARATING BAUM AND CRYSTAL LAKES IN 1978, BUT P. LENIUSCULUS WERE MORE ABUNDANT. IN 1990 ONLY P. LENIUSCULUS WERE FOUND AT SEVERAL DIFFERENT SITES IN THE LAKE.  
 Owner/Manager - UNKNOWN

Shasta Cray Report

Date of Report: 04/10/97

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Date Information Purchased: 03/18/97

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\* Shasta Crayfish

\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:

\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.

\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 5 --Dates Last Seen-  
Quality: Fair Element: 1990/06/2  
Type: Natural/Native occurrence Site: 1990/06/2  
Presence: Presumed Extant  
Trend: Decreasing  
Main Info Source: ENG & DANIELS 1982, (LIT)

Quad Summary: Cassel (4012185)  
County(ies): Shasta

Location: CRYSTAL LAKE, HAT CREEK SUBDRAINAGE; ABOUT 6 MILES NE OF BURNEY.

Lat/Long: 40d 56m 11s / 121d 33m 39s Township: 36N  
UTM: Zone-10 N4532491 E621165 Range: 04E  
Mapping Precision: SPECIFIC (0 Mile) Section: 31 XX Qt  
Symbol Type: POLYGON Meridian: M  
Group Number: 11334 More Information? N Acres: 42.1  
Map Index Number: 11334 More Map Detail? N Elevation: 2986 ft

Threats: HEAVY CATTLE GRAZING MAY BE PARTLY RESPONSIBLE FOR SILTATION OF  
LAKE BOTTOM. MAIN THREAT IS PRESENCE OF P. LENIUSCULUS.

Comments: Distribution Notes - THE ONLY PORTION OF THE LAKE STILL  
SUPPORTING SHASTA CRAYFISH IS THE ROCKY AREA NEAR THE OUTFLOW  
TO BAUM LAKE. Ecological Notes - MUCH OF THE LAKE BOTTOM IS  
SILT AND MUCK. THE ONLY ROCKY AREAS ARE NEAR THE OUTFLOW TO  
BAUM LAKE AND AROUND SOME SPRINGS. General Notes - POPULATION  
OF P. FORTIS HAS DECLINED FROM AN ESTIMATE OF 2,000 - 3,000 IN  
1978 TO ONLY A FEW HUNDRED IN 1990. P. LENIUSCULUS OUTNUMBERED  
P. FORTIS BY 7:1 IN 1990. Owner/Manager - DFG-CRYSTAL LAKE FH

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\* CNPS List:  
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\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 6 --Dates Last Seen-  
Quality: Good Element: 1990/11/C  
Type: Natural/Native occurrence Site: 1990/11/C  
Presence: Presumed Extant  
Trend: Stable  
Main Info Source: ENG & DANIELS 1982, (LIT)

Quad Summary: Cassel (4012185)  
County(ies): Shasta

Location: RISING RIVER LAKE, HAT CREEK SUBDRAINAGE, PIT RIVER SYSTEM; ~7  
MILES EAST OF BURNEY.

Lat/Long: 40d 54m 00s / 121d 31m 30s	Township: 35N
UTM: Zone-10 N4528482 E624225	Range: 04E
Mapping Precision: SPECIFIC (0 Mile)	Section: 09 S Qt
Symbol Type: POLYGON	Meridian: M
Group Number: 11379 More Information? Y	Acres: 105.2
Map Index Number: 11379 More Map Detail? Y	Elevation: 3197 ft

Threats: SITE IS PROTECTED FROM DEVELOPMENT. THE ONLY THREAT WOULD BE  
THE INTRODUCTION OF PACIFASTACUS LENIUSCULUS.

Comments: Distribution Notes - MOST CRAYFISH FOUND IN THR ROCKY OUTFLOW  
TO RISING RIVER. TWO CRAYFISH WERE FOUND ABOUT 100 YDS FROM TH  
OUTFLOW IN 1989. NO CRAYFISH WERE FOUND IN THE HEADWATERS IN  
1990. Ecological Notes - MOST OF THE LAKE BOTTOM IS SILT &  
MUCK WITH OCCASIONAL SPRINGS & ROCKY RUBBLE. THE OUTFLOW AREA  
IS ROCKY WITH COOLER WATER. DIVERSE INVERTEBRATE FAUNA  
ESPECIALLY SNAILS & LIMPETS. ALSO SCULPIN & TROUT. General  
Notes - 20 CRAYFISH OBSERVED 7/25/78. ABOUT 25 CRAYFISH IN  
THREE SIZE CLASSES OBSERVED 8/16/89. 8 ADULTS (INCLUDING 1  
OVIGEROUS FEMALE), 10 JUVENILES & 2 DEAD ADULTS OBSERVED  
11/3/90. Owner/Manager - PVT

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\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 9 --Dates Last See:  
Quality: Unknown Element: 1992/07,  
Type: Natural/Native occurrence Site: 1992/07,  
Presence: Presumed Extant  
Trend: Stable  
Main Info Source: ENG & DANIELS 1982 (LIT)

Quad Summary: Dana (4112115)  
County(ies): Shasta

Location: THOUSAND SPRINGS, RAINBOW SPRING & THE UPPER FALL RIVER.

Lat/Long: 41d 06m 13s / 121d 32m 59s	Township: 38N
UTM: Zone-10 N4551089 E621788	Range: 04E
Mapping Precision: SPECIFIC (0 Mile)	Section: 30 XX Q1
Symbol Type: POLYGON	Meridian: M
Group Number: 11357	Acres: 86.9
Map Index Number: 11357	Elevation: 3330 ft
More Information? Y	
More Map Detail? Y	

Threats: PRESENCE OF PACIFASTACUS LENIUSCULUS, GRAZING IN THE RIPARIAN ZONE, SILTATION.

Comments: Distribution Notes - MAIN POPULATION IN SPRING POOL AT THOUSAN SPRINGS, & IN SPRING POOL & OUTFLOW AREAS AT RAINBOW SPRING TO JUNCTION WITH FALL RIVER. IN FALL RIVER SHASTA CRAYFISH POPULATION IS PATCHY. FOUND AS FAR DOWNSTREAM AS FOOTBRIDGE IN SEC 29. Ecological Notes - PATCHY DISTRIBUTION OF VOLCANIC RUBBLE ON GRAVEL, SAND OR SILT. PATCHES OF AQUATIC VEG. ABUNDANT SNAILS, ROUGH & MARBLED SCULPIN, RAINBOW TROUT & SUCKERS. SIGNAL CRAYFISH IN UPPER FALL RIVER. HABITAT QUALITY VARIES FROM EXCELLENT TO POOR. General Notes - SHASTA CRAYFISH KNOWN FROM THIS AREA SINCE 1970'S. MULTIPLE SAMPLING LOCATIONS & SAMPLING DATES THROUGH 7/30/92. Owner/Manager - PVT

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\* State: Endangered State: S1 Audubon:  
\* CNPS List:  
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\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 10 --Dates Last Seen:  
Quality: Good Element: 1992/05/0  
Type: Natural/Native occurrence Site: 1992/05/0  
Presence: Presumed Extant  
Trend: Stable  
Main Info Source: ENG & DANIELS 1982, (LIT)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: CRYSTAL SPRINGS, CRYSTAL COVE & CRYSTAL INLET. TRIBUTARY TO JA  
SHE CREEK (FORMERLY SQUAW CREEK), FALL RIVER DRAINAGE.

Lat/Long: 41d 06m 42s / 121d 26m 59s	Township: 38N
UTM: Zone-10 N4552121 E630141	Range: 04E
Mapping Precision: SPECIFIC (0 Mile)	Section: UN XX Qt
Symbol Type: POLYGON	Meridian: M
Group Number: 11569	Acres: 8.4
Map Index Number: 11569	Elevation: 3305 ft

#### Threats:

Comments: Ecological Notes - ELABORATE INDIAN SUCKER TRAP IN CRYSTAL SPRINGS AREA. SEVERAL SMALLER TRAPS IN CRYSTAL COVE & CRYSTAL INLET. WATER INSIDE TRAPS IS VISIBLY CLEARER & COLDER THAN WATER OUTSIDE. LAVA BOULDERS 2-3 LAYERS DEEP. BUT SOME AREAS HEAVILY SILTED. General Notes - UNKNOWN NUMBER SEEN IN 1978. <10 SHASTA CRAYFISH WERE FOUND IN 1985. ONLY 1 FOUND IN 1990. 11 LIVE & 4 DEAD P. FORTIS FOUND IN 1992. Owner/Manager - PG&E, DPR-AHJUMAWI LAVA SPR SP

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Date of Report: 04/10/97

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\* State: Endangered State: S1 Audubon:

\* ---Habitat Associations--- CNPS List:  
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\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 11 --Dates Last Seen-  
Quality: None Element: 1978/05/X  
Type: Natural/Native occurrence Site: 1992/XX/X  
Presence: Extirpated  
Trend: Unknown  
Main Info Source: ENG & DANIELS, 1982 (LIT)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: FALL RIVER AT FALL RIVER MILLS.

( Lat/Long: 41d 00m 06s / 121d 26m 06s Township: 37N  
UTM: Zone-10 N4539914 E631606 Range: 05E  
Mapping Precision: NON-SPECIFIC (2/5 Mile) Section: 31 XX Qt  
Symbol Type: POINT Meridian: M  
Group Number: 11573 More Information? N Acres: 0  
Map Index Number: 11573 More Map Detail? N Elevation: 3300 ft

Threats: STREAM HAS BEEN DAMMED, AND THE AREA LIES WITHIN THE  
RESIDENTIAL LIMITS OF FALL RIVER MILLS.

Comments: Distribution Notes - 1 DEAD SHASTA CRAYFISH FOUND IN KNOCH'S  
POND IN 1978. Ecological Notes - NO TYPICAL HABITAT FOUND IN  
THIS AREA. General Notes - TYPE LOCALITY. NO LIVING  
PACIFASTACUS FORTIS FOUND; ONLY ONE DEAD ONE RECOVERED IN 1978  
NONE FOUND DURING 1990 & 1992 SURVEYS. Owner/Manager - UNKNOW

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\* State: Endangered State: S1 Audubon:  
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\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 12 --Dates Last Seen-  
Quality: Good Element: 1992/04/2  
Type: Natural/Native occurrence Site: 1992/04/2  
Presence: Presumed Extant  
Trend: Stable  
Main Info Source: ENG & DANIELS, 1982 (LIT)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: JA-SHE CREEK (FORMERLY KNOWN AS SQUAW CREEK) AND SPRINGS,  
TRIBUTARY TO TULE RIVER.

Lat/Long: 41d 06m 49s / 121d 27m 22s	Township: 38N
UTM: Zone-10 N4552347 E629557	Range: 04E
Mapping Precision: SPECIFIC (0 Mile)	Section: UN XX Qt
Symbol Type: POLYGON	Meridian: M
Group Number: 11556 More Information? N	Acres: 8.5
Map Index Number: 11556 More Map Detail? N	Elevation: 3305 ft

Threats: IN 1992 PACIFASTACUS LENIUSCULUS WERE FOUND ABOVE THE RAPIDS  
FOR THE FIRST TIME.

Comments: Distribution Notes - 1985: SHASTA CRAYFISH WERE FOUND IN MUCK,  
IN UPPERMOST END OF CREEK. 1990: FOUND ONLY UPSTREAM OF RAPIDS  
AT FOOTBRIDGE, WITH MOST FOUND IN HEADSPRINGS UNDER LAVA  
BOULDERS OR RUBBLE. 1992: FOUND IN STONE FISH TRAPS &  
SURROUNDING AREAS. Ecological Notes - HABITAT IS 3-4 FT DEEP  
VOLCANIC RUBBLE, WITH A BOTTOM COVERED WITH 0.5-1.0 INCH THICK  
MUCK. FILAMENTOUS ALGAE ABUNDANT. MANY SPRINGS, OFTEN IN STONE  
FISH TRAPS, IN THE HEADWATERS. General Notes - UNKNOWN NUMBER  
SEEN IN 1978. <10 SEEN IN 1985. 15 SEEN IN 1990. 18 SEEN IN  
1992. SNAILS, RAINBOW TROUT & SCULPIN ABUNDANT. Owner/Manager  
- PG&E, DPR-AHJUMAWI LAVA SPR SP

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\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 13 --Dates Last Seen  
Quality: Fair Element: 1996/08/  
Type: Natural/Native occurrence Site: 1996/08/  
Presence: Presumed Extant  
Trend: Decreasing  
Main Info Source: ENG & DANIELS, 1982 (LIT)

Quad Summary: Cassel (4012185)  
County(ies): Shasta

Location: SUCKER SPRINGS CREEK, TRIBUTARY TO PIT RIVER, AT PIT I HATCHERY

Lat/Long: 40d 59m 11s / 121d 30m 37s Township: 36N  
UTM: Zone-10 N4538093 E625278 Range: 04E  
Mapping Precision: SPECIFIC (0 Mile) Section: 10 SW Q  
Symbol Type: POLYGON Meridian: M  
Group Number: 11438 More Information? N Acres: 13.4  
Map Index Number: 11438 More Map Detail? N Elevation: 2840 ft

Threats: HATCHERY OPERATIONS, INVASION OF PACIFASTACUS LENIUSCULUS.  
PG&E'S PROPOSED PIT II RESERVOIR WOULD INUNDATE THIS SITE.

Comments: Distribution Notes - FOUND IN THE ROCK WALLS OF THE RACEWAY II  
THE SECOND & THIRD (DOWNSTREAM) PONDS OF THE HATCHERY.  
Ecological Notes - 2-3 M WIDE CREEK WITH CLEAN ROCK WALLS &  
GRAVEL BOTTOM. NO AQUATIC VEGETATION OR SNAILS EXCEPT IN THE  
MOST DOWNSTREAM POND WHERE HATCHERY TROUT WERE ABSENT. General  
Notes - ONLY 5 JUVENILES & 1 YOY WERE FOUND 8/27/96 AFTER  
HATCHERY DEWATERED THE SPRING AREA. UNKNOWN NUMBER OBSERVED  
1978, 3 SEEN 7/5/90, 27 SEEN IN 1994, 25 SEEN IN 1995.  
Owner/Manager - DFG

Shasta Cray Report  
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D - 0 5 0 2 5 4

D-050254

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\* Shasta Crayfish

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\* State: Endangered State: S1 Audubon:

\* CNPS List:

\* ---Habitat Associations--- CNPS RED Code:

\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE

\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.

\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP

\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;

\* LITTLE VEG.

\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 14 --Dates Last Seen-

Quality: Good Element: 1992/04/3

Type: Natural/Native occurrence Site: 1992/04/3

Presence: Presumed Extant

Trend: Unknown

Main Info Source: ELLIS, M. J. 1992 (OBS)

Quad Summary: Fall River Mills (4112114)

County(ies): Shasta

Location: WEST TULE COVE, ON THE NORTH SHORE OF THE TULE RIVER. 0.4 MILES  
ESE OF CRYSTAL SPRINGS & NW OF HERR POND.

Lat/Long: 41d 06m 39s / 121d 26m 25s Township: 38N

UTM: Zone-10 N4552015 E630950 Range: 05E

Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt

Symbol Type: POLYGON Meridian: M

Group Number: More Information? N Acres: 6.6

Map Index Number: 28370 More Map Detail? N Elevation: 3300 ft

Threats: SILTATION OF LAVA HABITAT FROM REDUCED SPRING FLOWS, GRAZING &  
LEVEE CONSTRUCTION. INVASION OF PACIFASTACUS LENIUSCULUS.

Comments: Distribution Notes - SHASTA CRAYFISH FOUND IN AREAS OF SMALL,  
STONE FISH TRAPS. SMALL DISJUNCT SUBPOPULATION SEPARATED BY  
METERS OF DEEP ORGANIC FLOCCULENT & SILT. Ecological Notes -  
PATCHES OF CLEAN LAVA COBBLE AND BOULDERS ON GRAVEL, GENERALLY  
ASSOCIATED WITH SPRINGS, OFTEN WITH STONE FISH TRAPS.  
SURROUNDING SUBSTRATE PREDOMINANTLY SILT. SEVERAL SILTED LAVA  
SINK HOLES (PROBABLY EXTINCT SPRINGS) OBSERVED. General Notes  
- 3 ADULTS AND 3 JUVENILES OBSERVED 4/17/92. 1 EXUVIA FROM P.  
LENIUSCULUS WAS ALSO FOUND. Owner/Manager - PG&E, DPR-AHJUMAV  
LAVA SPR SP

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\*\* California Department of Fish and Game \*\*\*\*\* Natural Diversity Data Base \*

\* PACIFASTACUS FORTIS  
/ Shasta Crayfish

\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:

\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.

\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 15 --Dates Last Seen-  
Quality: Good Element: 1992/02/0  
Type: Natural/Native occurrence Site: 1992/02/0  
Presence: Presumed Extant  
Trend: Unknown  
Main Info Source: ELLIS, M. J. 1992 (OBS)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: TULE COVE, ON THE NORTH SHORE OF THE TULE RIVER. 0.5 MILES E AST  
OF CRYSTAL SPRINGS & NW OF HERR POND.

Lat/Long: 41d 06m 44s / 121d 26m 14s Township: 38N  
UTM: Zone-10 N4552192 E631218 Range: 05E  
Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt  
Symbol Type: POLYGON Meridian: M  
Group Number: More Information? N Acres: 7.6  
Map Index Number: 28371 More Map Detail? N Elevation: 3300 ft

Threats: SILTATION FROM REDUCED SPRING FLOWS, GRAZING & LEVEE  
CONSTRUCTION. INVASION OF PACIFASTACUS LENIUSCULUS.

Comments: Distribution Notes - SHASTA CRAYFISH FOUND IN AREAS OF SMALL,  
STONE FISH TRAPS. SMALL DISJUNCT SUBPOPULATION SEPARATED BY  
METERS OF DEEP ORGANIC FLOCCULENT & SILT. Ecological Notes -  
PATCHES OF CLEAN LAVA COBBLE & BOULDERS ON GRAVEL, GENERALLY  
ASSOCIATED WITH SPRINGS & OFTEN WITH STONE FISH TRAPS.  
SURROUNDING SUBSTRATE PREDOMINANTLY SILT. SEVERAL SILTED LAVA  
SINK HOLES (PROBABLY EXTINCT SPRINGS) OBSERVED. General Notes  
- <10 SHASTA CRAYFISH OBSERVED 2/4/92. ONE P. LENIUSCULUS ALSO  
OBSERVED. Owner/Manager - PG&E, DPR-AHJUMAWI LAVA SPR SP

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\*\* California Department of Fish and Game \*\*\*\*\* Natural Diversity Data Base  
\*  
\* PACIFASTACUS FORTIS  
\* Shasta Crayfish  
\*  
\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:  
\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 16 --Dates Last Seen:  
Quality: Fair Element: 1992/02/01  
Type: Natural/Native occurrence Site: 1992/02/01  
Presence: Presumed Extant  
Trend: Unknown

Main Info Source: ELLIS, M. J. 1992 (OBS)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: HERR POND LEVEES BETWEEN TULE RIVER AND HERR POND. FALL RIVER R  
DRAINAGE.

Lat/Long: 41d 06m 30s / 121d 26m 13s Township: 38N  
UTM: Zone-10 N4551775 E631226 Range: 05E  
Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Qt  
Symbol Type: POLYGON Meridian: M  
Group Number: More Information? N Acres: 6.6  
Map Index Number: 28372 More Map Detail? N Elevation: 3300 ft

Threats: SILTATION DUE TO UNSTABLE LEVEES & CATTLE GRAZING.

Comments: Distribution Notes - SHASTA CRAYFISH FOUND UNDER LAVA COBBLE (LAVA GRAVEL ASSOCIATED WITH THE NORTHERN END OF THE ABANDONED HERR POND LEVEES. Ecological Notes - LEVEES WERE ABANDONED WHEN THEY BROKE FLOODING HERR POND. THE NORTHERN END OF THE LEVEES HAVE LAVA SUBSTRATE, THE REMAINING SUBSTRATE WAS SILT. MOST OF THE LAVA AREAS WERE SILTED WITH SOME ROCKS EMBEDDED. General Notes - 3 ADULTS, 4 JUVENILES & 1 DEAD ADULT OBSERVED FEB 3 & 4 1992. ADDING APPROPRIATE SUBSTRATE WOULD STABILIZE LEVEES AND CREATE MORE HABITAT. Owner/Manager - PG&E, DPR-AHJUMAWI LAVA SPR SP

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\* PACIFASTACUS FORTIS  
\* Shasta Crayfish

\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:  
\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 17 --Dates Last Seen-  
Quality: Poor Element: 1992/05/1  
Type: Natural/Native occurrence Site: 1992/05/1  
Presence: Presumed Extant  
Trend: Unknown  
Main Info Source: ELLIS, M. J. 1992 (OBS)

Quad Summary: Fall River Mills (4112114)  
County(ies): Shasta

Location: SOUTH SHORE OF THE TULE RIVER, JUST SOUTH OF HERR POND. FALL  
RIVER DRAINAGE.

Lat/Long: 41d 06m 14s / 121d 25m 58s	Township: 38N
UTM: Zone-10 N4551273 E631569	Range: 05E
Mapping Precision: SPECIFIC (0 Mile)	Section: UN XX Qt
Symbol Type: POLYGON	Meridian: M
Group Number:	Acres: 31.2
Map Index Number: 28373	Elevation: 3300 ft

Threats: HEAVY CATTLE GRAZING IN MCARTHUR SWAMP. PACIFASTACUS  
LENIUSCULUS THROUGHOUT THE AREA.

Comments: Distribution Notes - SHASTA CRAYFISH FOUND ALONG THE LEVEES.  
LITTLE HABITAT AVAILABLE, 1 FEMALE CRAYFISH WITH INSTARS WAS  
FOUND IN A BURROW & 1 MALE WAS FOUND UNDER A BOARD. Ecologica  
Notes - LAVA WAS IMPORTED DURING LEVEE MAINTAINANCE IN 1935.  
MOST ROCK NOW BURIED/EMBEDDED. SUBSTRATE MOSTLY SILT & ORGANIC  
FLOCCULENT MATTER. RIVER IS VERY EUTROPHIC DURING THE SUMMER.  
SHORELINE FENCED IN 1992. General Notes - 3 ADULTS, 1  
JUVENILE, & NUMEROUS CARAPACES & CHELAE FOUND IN 1992.  
SUBSTRATE ADDITIONS ARE PROBABLY CRUCIAL TO THE SURVIVAL OF  
THIS SUBPOPULATION. Owner/Manager - PG&E

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\*  
\* PACIFASTACUS FORTIS  
\* Shasta Crayfish

\* -----Status----- NDDB Element Ranks -----Other Lists-----  
\* Federal: Endangered Global: G1 CDFG:  
\* State: Endangered State: S1 Audubon:  
\* CNPS List:  
\* ---Habitat Associations--- CNPS RED Code:  
\* General: ENDEMIC TO THE KLAMATH RIVER DRAINAGE; NOW OCCURS ONLY IN THE  
\* MIDREACHES OF THE PIT RIVER AND ITS DRAINAGES.  
\* Microhabitat: INHABITS COOL, CLEAR WATER W/LOW GRADIENT AND TEMP  
\* VARIABILITY; SUBSTRATE IS VOLCANIC RUBBLE ON SAND/GRAVEL;  
\* LITTLE VEG.  
\*\*\* Element ID: ICMAL31010 \*\*\*\*\*

Occurrence Number: 18 --Dates Last Seen  
Quality: Fair Element: 1992/05/  
Type: Natural/Native occurrence Site: 1992/05/  
Presence: Presumed Extant  
Trend: Unknown  
Main Info Source: ELLIS, M. J. 1992 (OBS)

Quad Summary: Fall River Mills (4112114), Timbered Crater (4112124)  
County(ies): Shasta

Location: BIG LAKE, FALL RIVER DRAINAGE.

Lat/Long: 41d 07m 09s / 121d 23m 29s Township: 38N  
UTM: Zone-10 N4553061 E635040 Range: 05E  
Mapping Precision: SPECIFIC (0 Mile) Section: UN XX Q  
Symbol Type: POLYGON Meridian: M  
Group Number: More Information? Y Acres: 82.6  
Map Index Number: 28369 More Map Detail? N Elevation: 3305 f

Threats: SILTATION, BANK DEGRADATION DUE TO CATTLE GRAZING, PACIFASTACUS  
LENIUSCULUS FOUND AT MOUTH OF BIG LAKE.

Comments: Distribution Notes - FOUND ALONG PERIPHERY OF THE LAKE IN AREAS  
WHERE THERE ARE PATCHES OF LAVA ROCKS, BOULDERS, OR COBBLE.  
THESE AREAS ARE OFTEN AT OPENINGS OF SMALL COVES, IN SPRING  
AREAS, & IN INDIAN-MADE ROCK SUCKER TRAPS. USUALLY WITHIN 10  
OF SHORELINE. Ecological Notes - THE SUBSTRATE IS PRIMARILY  
SILT AND ORGANIC FLOCCULENT MATERIAL. SUITABLE HABITAT IS  
SCARCER WITH MANY OF THE LAVA ROCKS SILTED OVER AND/OR  
EMBEDDED. BIG LAKE IS VERY EUTROPHIC DURING THE SUMMER. HABITAT  
QUALITY RANGES FROM GOOD TO POOR. General Notes - 1992: 2 -  
P. FORTIS FOUND AT EACH LOCATION. BOTH ADULTS & JUVENILES WERE  
FOUND. NO CRAYFISH WERE FOUND ON THE SOUTH SHORE IN 1990. ON  
8/6/85, 27 CRAYFISH WERE FOUND (1/3 WERE PALE BLUE) IN 3  
SPRINGS AT NORTH END OF LAKE. Owner/Manager - PG&E,  
DPR-AHJUMAWI LAVA SPR SP

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